

CLAIMS

I claim:

1. A toothbrush comprising a head generally rigid in its longitudinal direction of extension, said head having bristles extending therefrom;
a neck angularly connected with said head; and
a handle connected with said neck, said handle providing for manipulation of said toothbrush by a teeth cleaning user, said handle being generally rigid in its longitudinal direction of extension; and wherein said neck has a flexible with respect to said handle along its longitudinal axis.

2. A toothbrush as described in claim 1, wherein said neck extends from said head in a direction generally opposite a direction of extension of said bristles.

3. A toothbrush as described in claim 1 wherein said neck is flexible with respect to said head in said longitudinal direction.

4. A toothbrush as described in claim 1 wherein said head and neck extend in planes generally parallel to one another.

5. A toothbrush as described in claim 1 wherein said toothbrush is fabricated from polymeric material having variable flexure modules.

6. A toothbrush as described in claim 1 wherein said toothbrush is made from a polymeric material which is generally flexible and wherein said head and said handle have stiffeners added thereto.

7. A toothbrush as described in claim 1 wherein said neck is grooved to provide flexibility.

8. A toothbrush as described in claim 6 wherein said grooves are generally transverse a direction of extension of said neck.

9. A toothbrush as described in claim 6 wherein said grooves are generally longitudinally along a direction of extension of said neck.

10. A toothbrush as described in claim 1 wherein said toothbrush is fabricated from a multi-injection variable flexure modules plastic material.

11. A toothbrush comprising:
a generally rigid elongated handle;
an angled neck extending from said elongated handle and being longitudinally flexibly connected with respect to said handle;
a generally rigid head portion longitudinally flexibly connected to said angled neck opposite from said elongated handle and having a longitudinally oriented centerline thereof, said head portion having an inside and an outside surface both of which are peripherally bordered by a sidewall therearound;
a plurality of tufts having a plurality of bristles therein, said plurality of bristles being arranged in a pattern projecting transversely from said inside surface of said head portion, said pattern of said plurality of bristles having outside rows and medial rows extending along said center line, said pattern comprising a continuously decreasing length of bristle from an outermost located of said plurality of bristles to a shortest of said plurality of bristles located closest to said centerline of said head portion;
said plurality of bristles also gradually varying in stiffness from a minimum stiffness at the outermost located of said plurality of bristles to a maximum stiffness located

at the plurality of bristles located closest to the centerline of said plurality of bristles in said pattern;

said plurality of bristles in said outside rows being substantially straight along their entire length and projecting perpendicular from a plane substantially parallel to said inside surface of said head portion, said medial rows having lower bristle portions thereupon, said lower bristle portions projecting generally perpendicular from a plane substantially parallel to said inside surface, said medial rows having top portions thereupon, said top portions being angled inward toward said centerline of said head portion; and

said outermost located of said plurality of bristles having end portions thereupon thereby creating an end plane, said end plane being substantially parallel to said inside surface.

12. A method of manufacturing a toothbrush wherein said toothbrush has a head generally rigid in its longitudinal extension, said head having bristles extending therefrom; a neck connected with the head and generally angled therefrom in the direction generally opposite a direction of extension of said bristles; a handle connected with said neck, the handle providing for manipulation by a tooth cleaning user, said handle being generally rigid in its length of extension and where the neck is at least flexibly connected along its longitudinal axis the head or the handle, said method of manufacturing comprising:

forming a mold chamber which includes a head, neck and handle;

placing into said mold chamber a material to at least partially form a rigid head; placing into said mold a material for at least partially forming a rigid handle; and

injecting into said mold chamber a material for at least partially forming a neck having longitudinal flexure with said head and/or said handle.

13. A method as described in claim 12 further comprising coating said toothbrush formed within said mold chamber with an outer cover.

14. A method as described in claim 12 further comprising placing into said mold chamber a rigid core for said head and placing into said mold a rigid core for said handle and injecting into said mold a polymer material forming said neck.

15. A method as described in claim 14 additionally comprising placing a core for said neck and injecting into said mold a material for connecting said neck to said head and to said handle.

16. A method as described in claim 12 further including injecting into said mold a material forming a generally rigid head, injecting into said mold a material forming a generally rigid handle; and injecting into said mold a blend of materials having various flexure modules to form said neck and wherein a middle portion of said neck is injected into said mold with a greater degree of material adding more flexure thereto.